

Media Usage, Religiosity and Gender as Determinant of Performance in Chemistry Subject

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Abstract

This research was designed to investigate the effect of media usage, religiosity and gender on performance in chemistry subject. This study employed survey research design. Two hundred participants (66 males and 134 females) drawn from public Senior Secondary Schools in Ibadan North Local Government Area, Oyo State constituted the study's sample. The instruments used to collect data included four structured questionnaires - Academic Performance Questionnaire in Chemistry (APQC) ($\alpha = .914$), Media Questionnaire (MQ) ($\alpha = .792$), Religiosity Questionnaire (RQ) ($\alpha = .735$), and Gender Questionnaire (GQ) ($\alpha = .899$). Chemistry Achievement Test (CHAT) was used to determine performance level and ability difference between male and female. Four research questions were answered and three hypotheses were tested at 0.05 Alpha level of significance. Data were analyzed using Pearson's Product Moment Correlation and Multiple Regression Analyses. The findings of this study showed that media ($r=0.119$, $df = 199$, $P < 0.05$) is a significant correlate of academic performance in chemistry while religiosity ($r= 0.057$, $df = 199$, $P > 0.05$) and gender ($r=0.032$, $df = 199$, $P > 0.05$) are not. It was also revealed that the three independent variables (media, religiosity and gender) are not joint predictors of academic performance in chemistry ($R = 0.125$, $R^2 = 0.016$, $p < 0.05$). It was evident from the findings that media (beta=.112, 11.2%, $t=1.552$, $p < 0.05$) had the highest significant contribution to academic performance in chemistry. The results also showed that there is no statistical difference in the ability of male ($x=3.89$, $SD=1.609$) and female ($x=4.01$, $SD=1.573$) even though 59.5% of the students scored less than 50 in Chemistry Achievement test. The study, therefore, concluded that media is a potent correlate and significant determinant of performance in public Senior Secondary Schools in Ibadan North Local Government Area, Oyo State, Nigeria while religiosity and gender are not.

Keywords: Academic performance, Chemistry, Media, Religiosity, Gender

1. Introduction

Academic performance of students has for a long time been a subject of debate in our society. Of much concern is the poor performance of students in science related subjects: biology, chemistry and physics which are the foundation of a number of science and technology courses, a *sine qua non* to the technological advancement of any nation. The skilled manpower every nation needs is also the product of the school system (Adesoji, 2006; Adam & Nor, 2014; Elger, 2015). The problem of poor academic performance is pervasive in many nations even though a number of countless efforts have been made towards addressing the issue. For example, the National Examinations Council (NECO) in Nigeria in its June/July 2014 examination reported that only 52.29% of candidates passed with five credits, but in 2015 the result statistics showed that 68.56% of candidates had 5 credits. This appeared to be much better but sadly, the science subjects suffered serious setback (NECO, 2015). The May/June result statistics for the 2015/2016 as announced by the Head of National Office (HNO) of West African Examination Council (WAEC), said only 38.68 per cent of the participants had credits in 5 subjects and above, including English and Mathematics while chemistry and biology were among the subjects with decline in performance (WAEC, 2015).

The study of chemistry is important because it is perceived to be the mother all other science and technology courses or innovations and is therefore among the key subjects used for selective advancement in the education system (Barnea & Dori, 1999; Badru, 2004; Akala, 2010). Readiness to learn or motivation is an important issue in the study of chemistry (Ford, 1992) since it is the level of preparedness of a learner. The media (print and electronic) which is the carrier or mode of instruction has positive or negative impact on the teaching and learning of chemistry. Physical resources which are visual for example textbooks, laboratory equipment and materials for both teaching and learning helps students achieve a lot in science. Many of these are classified as instructional materials (L'Engle et al., 2006). However, the roles of certain visual media, television or video have been reported to have negative effect on academic performance. A study on preteens and adolescents have suggested a detrimental effect of television viewing on school performance (Wiecha et al.,

2001; Sharif & Sargent, 2006; Butt & Philips, 2008) relating it to lower homework completion, more learning problems, and worse academic achievement. Many of these invariably lead to aggressive behaviours, truancy with resultant detrimental effect on school activities (Ofole et al, 2015).

The social media has also been shown to be a force to reckon with in the education system in recent times (Sharif & Sargent, 2006; Adam & Nor, 2014). Many researches on the impact of media and academic performance that have been conducted had varied notion on the impact of social media as some agreed that social networking sites have a positive impact on student's academic performance and also helps individuals become more knowledgeable (Ellison et al., 2006; Adam, & Nor, 2014) while majority reported that it actually distract student's attention and therefore may have demerits which can however be overcome through collaborative learning (Hall & Parsons, 2001; Al-Rahmi & Othman, 2014).

One's level of religious commitment, religiosity could certainly affect education, career decisions, sexuality amongst others (Brink, 1993; Hill & Hood, 1999). The relationship between the level of religiosity and the level of education is philosophical, scientific and political (Sacerdote & Glaeser, 2001). Social theory often claims that relation between religion and academic performance is often negative or non - existent but recent studies suggest that religious practice; personal religiosity or private religious practice acts as a facilitating agent by influencing pro-social behaviours thereby moderately impacting academic performance in positive ways (Peltzer et al, 2002; Line, 2005).

Gender, a psychological term or cultural construct used to describe behaviours and attributes expected of individuals on the basis of being born male or female can influence subject interest and career choice of students. This may have been the reason there are relatively few female scientists and engineers at the professional level and even fewer technicians and tradeswomen at the skilled worker level (Keeves & Kotte, 1991, Umoh, 2003).

In Nigeria, National Report on Situation and Policy Analysis of Basic Education in Nigeria (1993) indicated that some of the obstacles to women's education are rooted in Nigeria's tribal history, social and cultural nuances. Discriminatory cultural practices, religious bias and socio-economic status of parents affect female education in Nigeria. Forced and early marriage is the most important single constraint on education of girls in Northern states of Nigeria, while in the south, cultural stereotype that women's role are in the home front and that it is pointless investing in female education since the girl will eventually get married and adopt her husband's name is a bane in women education. Another factor and no less important is the economic down turn of many families in Nigeria (Oloyede, 2010; Al-Rahmi & Othman, 2014; Abosede, 2015).

2. Statement of Problem

Poor academic performance of students is a social menace and has been reported to be the cause of anti social behaviours, like truancy, deviance, rebellion, and insurgency as being witnessed in Northeastern part of Nigeria through the actions of Boko Haram. Particularly Poor academic performance in science especially chemistry specifically leads to inability of a nation to achieve technological breakthrough as evidenced in many developing countries. Science education faces a lot of problem in developing nations. Technologically advanced nations view the sciences as an important area for the purpose of producing the work force needed for the development of their nation (Postelthwaite & Wiley, 1991; Bello & Oke, 2010). Chemistry is assumingly the mother of all sciences because all other science subject like physics, biology, botany, archeology etc spring up from it. Chemistry as a science is required in the study of professions like, medicine, pharmacy, engineering, nursing amongst others (Barnea & Dori 1999; Badru, 2004). Many factors have been claimed to militate against the achievement of sound academic performance in chemistry for example lack of adequate instructional resources and equipment, poor teacher preparation and remuneration, uninspired curricula and a negative attitude by all stakeholders in education (Orodho, 1996). Poor performance and gender disparity in Chemistry still persists even after many spirited efforts have been made to counter them like training of teachers, incentives for science teachers, spirited gender awareness efforts by governments as well as intervention by NGO's (Non Governmental Organization), provision of infrastructures and resources like laboratory materials and equipment. Other areas with direct impact on achievement are the ability of the learner and motivational orientation of learner (liking, readiness, aspiration and learning style). No one will doubt the important role of teachers in teaching Chemistry and their influence on their students' acquisition of knowledge and skills. Their characteristics, qualification, teaching experience, instruction styles and gender sensitivity are some areas of concern. Availability of resources like textbooks, laboratory equipment and materials for both teaching and learning help students achieve in science and will greatly influence academic performance in Chemistry. The influence of the social media too has been reported to have fewer benefits than demerits (Boyd & Ellison, 2007; Asemah et al., 2013; Fraid & Ronnel, 2014).

Religiosity which deals how a person adhere to his/her religious doctrines has been shown to have impact on education and career decisions of students (Brink, 1993; Sacerdote & Glaeser, 2001; McKune & Hoffman, 2009). Parents and society too have a big role to play in religiosity as they sometimes set norms and

values peculiar to their social groups which tend to affect career decisions of their wards (Hill & Hood, 1999) and invariably the choice of subjects at the secondary school level. Certain traditional beliefs too through religion encourage gender stereo - type roles whereby girls see themselves as future mothers and tend to show aversion for perceived male disciplines (Brink, 1993; Oloyede, 2010).

Demand for societal changes was evident as women all over the world now claim the right to be treated as equals alongside men in all aspects of social, political and cultural life (Umoh, 2003) as gender imbalance is evidenced in many disciplines (Keeves & Kotte, 1991; Aniodoh & Egbo, 2013). Despite the importance of chemistry to our society, in areas such as drugs, diseases, pollution, food, which when applied to the society improves man standard of living, the choice and interest of students in chemistry occasioned by poor performance are still being influenced by several factors. All efforts have been made in addressing the issues but without any fruitful result. What this means is that the real cause of poor performance in Chemistry has not been identified and therefore necessitating more research. This study is therefore designed to develop a general framework that defines the direct and indirect causes and effects of media, religiosity and gender on academic performance especially as it relates to chemistry.

Research Questions and Hypotheses

The following research questions and hypothesis were posed to guide this study based on the theoretical and empirical literature review.

Hypotheses: Three null hypotheses tested at 0.05 level of significance guided the study.

H0₁: There will be no significant relationship between media and academic performance in chemistry.

H0₂: There will be no significant relationship between religiosity and academic performance in chemistry.

H0₃: There will be no significant relationship between gender and academic performance in chemistry.

Research Questions

RQ 1: What is the joint contribution of independent variables (media, religiosity and gender) to the prediction of dependent variable (academic performance)?

RQ 2: What is the relative contribution of independent variables (media, religiosity and gender) to the prediction of dependent variable (academic performance)?

RQ 3: What is the level of the students' performance in Chemistry achievement test?

RQ 4: What ability differences are there between boys and girls in Chemistry Achievement?

3. Methods

3.1 Research Design

The design for this study is survey research design that utilized correlation type. It was used because of its ability to determine the relationship among the variables and performance in chemistry of the study participants without manipulating any of the variables. The research is also descriptive in other to ascertain the influence of the independent variables (media, religiosity and gender) on the dependent variable (performance in chemistry). The population for this study comprises of senior secondary school students offering chemistry in Ibadan North local Government area (LGA) of Oyo State, Nigeria.

3.2 Sample and Sampling Technique

Simple sampling technique was used to draw 200 students from secondary schools in Ibadan North LGA. The participants included both male and female. 66 participants representing 33% were males while 134 representing 67% were females. Also 134 (67%) respondents are Christians while 66 (33%) participants are practicing Islam. The participants' ages ranged from 14 to 19 years old with an average age of 16.5.

3.3 Instrumentation

The instruments used to collect data in this study consisted of four (4) structured questionnaires namely: Academic Performance Questionnaire in Chemistry (APQC), Media Questionnaire (MQ), Religiosity Questionnaire (RQ), Gender Questionnaire (GQ) and Chemistry Achievement Test (CHAT), used to determine performance level and ability difference between male and female.

APQC was used to study students' level of performance and feelings about chemistry and contained 18 items with Crombach' alpha co-efficient of 0.914. MQ contained 15 items with Crombach alpha co-efficient of 0.792 and tested the impact of print (books), visual media like television, video and computer games as well the effect of social media. RQ contained 19 items which when piloted, yielded Crombach alpha co-efficient of 0.735. GQ was developed to assess boys and girls perceptions of chemistry as a subject, the positive and negative effect of gender imbalance on academic performance and to National growth. It contained 19 items which when piloted yielded Crombach's alpha coefficient is 0.891. All the questionnaire required the participants to respond using 5-point Likert response scale; Strongly Disagree = SD, Disagree = D, Undecided= UD, Agree = A and Strongly Agree = SA. Chemistry Achievement Test (CHAT) was also found appropriate for this study because it was considered an important tool in correlation research like this one and was constructed with some items adapted

from West African Examination Council. It emphasized three abilities: descriptive, spatial and mathematical abilities.

3.4 Procedure

The questionnaires were administered in the various schools and the time to respond was on the average 15 - 20 minutes while 45 minutes was given for the Chemistry Achievement Test. Descriptive and Inferential statistics were used. Data were analyzed using Pearson's Product Moment Correlation and Multiple Regression Analyses. The hypotheses were tested at 0.05 Alpha level of Significance.

4. Results

The results are presented according to the research questions and the hypotheses.

4.1 Hypotheses

Table 4.1.1: Summary of Correlation between Independent Variables and Performance in Chemistry

Variable	N	Mean	SD	r-cal	r-tab	Decision
Academic Performance	200	3.97	1.582	1		
Media	200	3.50	1.125	0.119	0.094	H ₀₁ rejected
Religiosity	200	3.67	0.942	0.057	0.420	H ₀₂ accepted
Gender	200	4.51	0.501	0.032	0.654	H ₀₃ accepted

Correlation is significant at 0.05 levels (2-tailed)

Hypotheses 1 (H₀₁): There is no significant relationship between media usage and performance in chemistry subject of the study participants.

There is a weak but positive and significant relationship between media and performance of the study participants ($r=0.119$, $df = 199$, $P < 0.05$) as shown in Table 4.1.1. Since r-cal value (0.119) is greater than r-tab (0.094), the hypothesis is therefore rejected. The alternative hypothesis upholds that there is a significant relationship between media and performance in chemistry.

Hypotheses 2 (H₀₂): There is no significant relationship between religiosity and performance in chemistry subject of the study participants.

There is a weak but positive and significant relationship between religiosity and performance in chemistry of the study participants ($r= 0.057$, $df = 199$, $P > 0.05$) as shown in Table 4.1.1. Since r-cal value (0.057) is less than r-tab (0.420), the hypothesis is therefore accepted. This implies that the null hypothesis upholds that there is no significant relationship between religiosity and performance in chemistry.

Hypotheses 3 (H₀₃): There is no significant relationship between gender and performance in chemistry subject of the study participants.

There is a weak but positive and significant relationship between gender and performance in chemistry of the study participants ($r=0.032$, $df = 199$, $P > 0.05$) as shown in Table 4.1.1. Since r-cal value (0.032) is less than r-tab (0.654), the hypothesis is therefore accepted. This implies that the null hypothesis upholds that there is no significant relationship between gender and academic performance.

4.2 Research Questions

Research Question One (RQ 1): What is the joint contribution of independent variables (media, religiosity and gender) to the prediction of dependent variable (performance in chemistry subject)?

Table 4.2.1: The Joint Contribution of Media, Religiosity and Gender to the prediction of performance in chemistry.

R=0.125	R ² =0.016	Adj R ² =0.000	Std error=1.581	ANOVA	
Sources of Variation	Sum of Squares	Df	Mean Square	F	Sig
Regression	7.737	3	2.579	1.031	0.380
Residual	490.083	196	2.500		
Total	497.820	199			

Table 4.2.1 above shows that the independent variables media, religiosity and gender had R value of 0.125, R square of 0.016, R square Adjusted of 0.000 and yielded F-ratio value of 1.031 at 0.05 alpha level of significance in the analysis of variance on the multiple regression. Also the p value 0.3800 is greater than the significance level 0.05. This indicate that media, religiosity and gender cannot jointly predict academic performance in chemistry of the study participants.

Research Question Two (RQ 2): What is the relative contribution of independent variables (media, religiosity and gender) to the prediction of dependent variable (performance in chemistry subject)?

Table 4.2.2: The Relative Contribution of Media, religiosity, and gender to the prediction of performance in chemistry.

Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig
	B	Std. Error	Beta	B	Std. Error	
Constant	3.154	1.036	0.003	3.045	0.002	
Media	0.157	0.101	0.112	1.552	0.04	
Religiosity	0.064	0.128	0.036	0.502	0.616	
Gender	0.006	0.240	0.002	0.027	0.979	

Table 4.2.2 above shows that the p value of Media (0.04) is less than the significance p value (0.05), while Religion (0.616) and Gender (0.979) are greater than the significance p value (0.05). Therefore, Media (beta=.112, 11.2%, b = 1.552, P< 0.05) has significant contribution to academic performance, Religiosity (beta=.036, 3.6%, b = 0.502, P> 0.05) and Gender (beta=.002, 0.2%, b = 0.027, P> 0.05) did not have significant contribution to academic performance. In terms of magnitude contribution, the table also reveals that media (11.2%, b=1.552, p<0.05) had the highest significant contribution to academic performance in chemistry. This implies that media has significant influence on academic performance while religiosity and gender do not.

Research Question Three (RQ 3): What is the level of the students' performance in the Chemistry achievement test?

Table 4.2.3: Performance of Students in the Chemistry Achievement Test

Score	Grade	Frequency	Percent (%)
100-75	A	16	8.0
74-65	B	17	8.5
64-50	C	48	24.0
49-40	D	52	26.0
39-30	E	10	5.0
29-0	F	57	28.5
Total		200	100.0

Table 4.2.1 reveals that 8.0% of the respondents scored between 100 and 75, 8.5% of the respondents scored between 74 and 65, 24.0% of the respondents scored between 64 and 50, 26.0% of the respondents scored between 49 and 40, 5.0% of the respondents scored between 39 and 30 while 28.5% of the respondents scored between 29 and 0. Based on the result shown on the table, 59.5% of the students scored less than 50, it can thus be concluded that the majority of the students performed poorly in the Chemistry achievement test.

Research Question Four (RQ 4): What ability differences are there between male and female in Chemistry Achievement?

Table 4.2.4: The ability difference between male and female in chemistry achievement test

Gender	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum		
					Lower Bound	Upper Bound				
Male	66	3.89	1.609	.198	3.50	4.29	1	6		
Female	134	4.01	1.573	.136	3.74	4.28	1	6		
Total	200	3.97	1.582	.112	3.75	4.19	1	6		

Table 4.2.5 : Chemistry Achievement Test (CHAT) : ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.570	1	.570	.227	.634
Within Groups	497.250	198	2.511		
Total	497.820	199			

One way analysis of the variance (ANOVA) was used to determine whether the level of performance between male and female in the chemistry achievement test differed among the respondents. The analysis showed that there is no significant difference between male and female ($F=0.227$, $p>0.05$). This indicates that there is no statistical difference in the ability of male ($x=3.89$, $SD=1.609$) and female ($x=4.01$, $SD=1.573$) in Chemistry Achievement test.

5. Discussion of Findings

The result obtained regarding hypothesis one, which states that, 'there is no significant relationship between media and performance in chemistry of the studied participants', showed that there is a weak correlation and a significant relationship between media and academic performance in chemistry of the study participants. The

two types of media are investigated in this research: Print (newspapers, magazine, periodicals, and textbooks) and Electronic (radio, television, video, and computer). They form avenues for socialization and education and are also clearly in competition with one another for a restricted period of lecture time (Sharif et al, 2010). Wiecha et al, (2001) was of the opinion that household television access has significant associations with screen time, reading, and homework completion among youth thereby affecting academic performance negatively. Wiecha et al., (2001) and Sharif & Sargent (2006) also reported negative association between television, movie, and video game exposure and school performance relating it to lower homework completion, more learning problems, and worse academic achievement. According to Sponcil & Gttimu (2010), the new development in the technological world has made the computer particularly the internet an innovative way for people to communicate and has gained popularity over the last decade. The social media particularly is very popular among adolescent of school age (Jan & Hermkens, 2011). Even though this research support the assertion that physical resources which are visual for example textbooks, laboratory equipment and materials for both teaching and learning helps students achieve a lot in science (L'Engle et al., 2006), the social media has been found to have negative impact. Many researches on the impact of media and academic performance that have been conducted had varied notion on the impact of social media as some agreed that social networking sites have a positive impact on student's academic performance and also helps individuals become more knowledgeable while some reported that it actually distracts student's attention (Hall & Pearson, 2001; Al-Rahmi & Othman, 2014; Intakhab, 2015). Addiction to social media is therefore its major demerit. This research also supported the view of Adam & Nor, (2014) that social media has negative effects on academic performance and Paul et al (2012) who asserts that online social networking have detrimental effect on student academic performance linking it to lack of parental control. This finding indicated that there is a significant relationship between media and academic performance in chemistry of the study participants.

On the other hand, the result obtained from the analysis of hypothesis two, which states that 'there is no significant relationship between religiosity and academic performance in chemistry of the study participants', showed that there is a weak correlation between religiosity and academic performance in chemistry of the study participants. Religiosity theory opined that the patterns of mental activity, rooted in the biology of brain functions and the contexts in which these develop, have direct effects on the elaboration of all domains of human culture (Iannaccone, 1990; D'Andrade, 1995; Stoltz, 2006; Whitehouse, 2000). Not more information on the effect of religiosity on academic performance especially on chemistry was obtained in literature but there is a general opinion that religiosity could certainly affect education and career decisions (Brink, 1993; Hill & Hood, 1999). The result of obtained in testing this hypothesis supports this view that weak correlation exist between religiosity which deals more with how religious a person is and academic performance in chemistry. Therefore there is no significant relationship between religiosity and academic performance in chemistry of the study participants.

In analyzing hypothesis three that states that 'there is no significant relationship between gender difference and academic performance in chemistry of the study participants', the result obtained showed that there is a weak correlation between gender difference and academic performance in chemistry of the study participants. Ekeh (2003) opined that male secondary school students performed better than females in science and mathematics and that these differences in performance can be attributed to gender stereotyping which encouraged male and female students to show interest in subjects relevant and related to the roles expected of them in the society. While other researchers Keeves & Kotte, (1991), Kotte (1992), Kakonge, (2000) and Udousoro, (2011) who all studied gender difference in science achievement were of the opinion that gender has relative influence on the career decision but not really on academic performance. Okwon (2005) also maintained that gender has no significant influence on students' performance in science because attitude developed by young people during their study of science can be as important as the skills they acquire and the knowledge they obtain. This is because attitude regulates behaviour not only in the classroom but in all other areas of human experience. This present study upholds the view of these researchers that gender has no significant influence on students' academic performance in chemistry. The finding therefore indicated that there is no significant relationship between gender difference and academic performance in chemistry of the study participants.

The study outcome of Research question one which states that "what is the joint contribution of independent variables (media, religiosity and gender) to the prediction of dependent variable (academic performance in chemistry)?" revealed that media, religiosity and gender cannot jointly predict academic performance of the study participants. The study revealed that only media is a positive correlate of students' academic performance in chemistry, that is media is responsible for the poor academic performance of students in chemistry. This is in agreement with Sharif & Sargent, (2006), who investigated the association between television, movie, and video game exposure and school performance and found out that over indulgence in this activity have negative effects on academic performance. This was further corroborated with another research that investigated the effect of visual media use on school performance (Sharif et al, 2010). Al-Rahmi & Othman, (2014) also opined that social media use has negative impact on academic performance of students because the

electronic media has been reported to have negatively influenced students in terms of content and addiction. This shows that the independent variable when pulled together do not have significant contribution to performance in chemistry.

However, the result obtained in the analysis of Research question two which states that “what is the relative contribution of independent variables (media, religiosity and gender) to the prediction of dependent variable (academic performance in chemistry)?” suggests that media has significant contribution to academic performance. In terms of magnitude of contribution, media had the highest significant contribution to academic performance. This supported the view of Johnson et al., (2007) who reported that extensive television viewing and the development of attention and learning difficulties during adolescence has negative effect on academic performance. Christakis. & Zimmerman, (2007) opined that violent television viewing during preschool is associated with antisocial behaviour during school age. Dworak, et al (2007) reported that singular excessive computer game and television exposure have negative impact on sleep patterns and memory performance of school-aged children. Also there is a very strong association between television, movie, and video game exposure and school performance as reported by Sharif & Sargent (2006). Kaplan & Haenlein, (2010) are of the view that opportunities abounds in the use of social media but the challenges encountered are also numerous. This is also the assertion of Dabner (2011) who opined that electronic resource have been a great support to education especially distance education but the demerits cannot be overlooked as social media has been shown to have negative influence on academic performance. Gray et al., (2010) also corroborated the fact that the use of social web technologies by international and domestic undergraduate students has gone a long way in internationalizing education and has even brought education to the door step of all and sundry. But the issue of content, addiction and distraction is of great concern and must be addressed as invariably the demerits might overshadow the merits. Paul et al., (2012) in studying the effect of online social networking on student academic performance confirmed that many social network sites are distractions to students and as such pose as a possible danger to them in achieving their career objectives. This implies that the tendency of media to impact negatively on academic performance is not ruled out. The result of this research upholds the view that media relatively contributed significantly to academic performance and is consistent with other findings. Much therefore has to be done by those tasked with education, parents, teachers, policy makers and government in this regard.

Religiosity is not a relative correlate of academic performance based on the study outcome of this research. A number of studies in this regard have different opinion on the effect of religiosity on academic performance. Chaves & Gorski, (2001) opined that religious pluralism and religion participation that is gaining ground in recent times has affected all area of social activity especially education. Line (2015) in defining academic performance in terms of religious belief, public religious practice and private religious practice, asserts that certain denomination appear to have stronger correlation in measuring these variables. Public religious practice however has a moderate impact on academic performance using variable related to church meeting attendance. Religious believe variables were also found to be completely negligible in their impact. These findings do not necessarily mean that education is positively related to religious activity (Lawson, & McCauley, 1990). Peltzer et al, (2002) reported a positive association between academic performance and religious activity. However, going by social theory, relation between religion and academic performance is often negative or non – existent (Stoltz, 2009a & b). In general, many studies have treated religiosity education as exogenous despite many early works who argue that human capital variables should be treated as endogenous. Other researchers who expanded the existing research in this area by treating education as an endogenous variable finds out that there is no causal effect of religious activity on education (Constantine & Miville, 2006; Sacerdote & Glaeser, 2001; McKune & Hoffman, 2009) which is also in agreement with the findings of this research.

In the same vein, the result of this research indicated that gender did not have significant contribution to academic performance. Literature too reported varied opinion on the contribution of gender to academic performance. Akala (2010), in investigating gender difference in students' achievement in chemistry in some secondary schools found that boys had stronger affinity and interest towards chemistry than girls but in terms of performance, gender was not a significant predictor of academic performance. Teacher and school factors were also of little effect on chemistry achievement with respect to gender. There were also no significant gender differences in IQ scores among adolescents but females perform slightly better on general IQ tests during pre-school years, while males perform better in high school (Kotte, 1992; Akala, 2010). Of note is the fact that boys and girls begin to show the greatest differentiation of intellectual functioning at adolescence. Improving science (by extension to Chemistry) achievement, reduces difference in performance levels between boys and girls which may eventually lead to greater economic efficiency (Keeves and Kotte 1991; Kakonge, 2000). Okwon (2005) also maintains that gender has no significant influence on students' performance in science. This current finding too corroborates the assertion that gender is not a correlate of academic performance in chemistry. Therefore it can be stated categorically that media is a significant predictor of academic performance in chemistry of the study participants while religiosity and gender are not.

Research question three states that “what is the level of the students’ performance in chemistry achievement test?” The findings revealed that majority of the students performed poorly in the chemistry achievement test, 59.5% of the students having scored less than 50. It can thus be concluded that majority of the students performed poorly in the chemistry achievement test. The reason for the poor performance is not farfetched using data obtained from demographic data. It was revealed that 33 (16.5%) respondents get private tuition in chemistry while a meaningful number, 167 (83.5%) respondents do not get private tuition in chemistry. The poor performance may also be linked to the choice of future careers of the study participants. It was revealed that apart from 33 (16.5%) of the respondents who would like to become teachers, 33 (16.5%) who wants to become Nurses, 68 (34%) Doctors, 33 (16.5%) Pharmacists when they leave school, a significant number of the students, 33 which represent (16.5%) want to become Politicians when they leave school. This idea reduces students’ interest in chemistry lesson and may have accounted for the poor academic performance in chemistry.

Lastly for Research question four (what ability differences are there between male and female in Chemistry Achievement?). It was found out that there is no statistical difference between male and female in their ability on Chemistry Achievement Test. This is also in support of the work of Okwon (2005) and Udousoro (2011) who concluded that there was no gender difference with respect to academic performance in science.

6. Conclusion

This study based on the research findings concluded that media is a potent correlate and significant determinant of academic performance in chemistry while religiosity and gender are not. As such the use of media by adolescents of school age should be properly monitored in other that it will not have negative effect on academic performance.

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References

Abosede S.C. (2015). Gender, Parents’ Job-Type and Family Size as Determinants of Junior Secondary School Students’ Academic Performance. *International Journal of Humanities and Social Science* 5(4), 75-81.

Adam, M. H. & Nor, Z. A. (2014). The influence of Social Networking sites on Students’ Academic Performance in Malaysia, *International Journal of Electronic Commerce Studies* (5) 2, 247-254. doi: 10.7903/ijecs.1114.

Adesoji F. A. (2006). “*Chemistry Methods*” Gold Print (SS) Ltd for National Open University Lagos ISBN 978-058-074-3.

Akala, J. B. (2010). Gender differences in students’ achievement in chemistry in secondary schools of Kakamega district, Kenya. An M Sc. dissertation submitted to the Department of Educational Management and Technology, Kenyatta University, Kenya.

Al-Rahmi, W. M. & Othman, M. S. (2014). The Impact of Social media use on Academic Performance among University Students: A pilot study *Journal of Information Systems Research and Innovation*, 1-10. Retrieved from <http://seminar.utmspace.edu.my/jisri/>. 10 September, 2015.

Aniodoh H.C. O & Egbo, J. J. (2013). Effect of Gender on Students’ Achievement in Chemistry Using Inquiry Role Instructional Model *Journal of Educational and Social Research* . 3 No. 6 17- 21. Doi:10.5901/jesr.2013.v3n6p17

Asemah, E.S., Okpanachi, R.A. & Edeghoh, O.N. (2013). Influence of Social Media on the Academic Performance of the Undergraduate Students of Kogi State University, Anyigba, Nigeria *Research on Humanities and Social Sciences* 3(12), 23-29.

Badru, A. K. (2004). Student Performance in Mathematics as Correlate of their Performance in Chemistry. *45th Annual Conference Proceedings Science Teachers Association of Nigeria* pp 35-40.

Barnea N., & Dori Y. J. (1999). High-School Chemistry Student’s Performance and Gender differences in a Computerized Molecular Modeling Learning Environment. *Journal of Science Education and Technology* 8(4), 257-265.

Bello, M.A. & Oke, M. G. (2010). An appraisal of candidates’ achievement in The West African Senior School Certificate Examination (WASSCE) among WAEC member Countries.

Boyd, D.M. & Ellison, N.B. (2007). Social Network Sites: Definitions, History, and Scholarship, *Journal of Computer Mediated Communication*, 13, 210-230 doi:10.1111/j.1083-6101.2007.00393.x.

Brink, T. I. (1993). Religiosity: measurement. In Survey of Social Science: Psychology, Frank N. Magill, Ed., Pasadena, CA: Salem Press, pp 2096-2102.

Butt, G. & Philips, T. (2008). Internet Addiction: Metasynthesis of quantitative Research 1996 – 2006.

CyberPsychology and Behaviour 12(2), 202 – 207.

Chaves, M. & Gorski, P.S. (2001). ‘Religious Pluralism and Religion Participation’, *Annual Review of Sociology* 27: 261–81.

Christakis, D.A. & Zimmerman, F.J. (2007). Violent television viewing during preschool is associated with antisocial behaviour during school age. *Pediatrics*. 120(5), 993–999.

Constantine, M. G. & Miville M.L. (2006). “Religion, Spirituality and Career Development in Africa and American College Students: A Qualitative Inquiry” *Career Development Quarterly* 54 (3), 227-241.

Dabner, N. (2011). Design to support distance teacher education communities: A case study of a student– student e-mentoring initiative. Proceedings of Society for Information Technology and Teacher Education International Conference 2011. Nashville, TN: AACE 1-880094-84-3.

D’Andrade, R. (1995). *The Development of Cognitive Anthropology*. Cambridge: Cambridge University Press.

Dworak, M., Schierl, T., Bruns, T., & Struder, H.K. (2007). Impact of singular excessive computer game and television exposure on sleep patterns and memory performance of school-aged children. *Pediatrics*.120(5), 978–285.

Ekeh, P. U. (2003). Gender Bias and Achievement in Science and Mathematics among School Pupils. Implications for Human Resource Development. *Journal of Curriculum Organization of Nigeria*, 10(1), 30-33.

Elger, D. (2015). Theory of Performance. Retrieved from www. theory of Performance.html, 5 November, 2015.

Ellison, N.B., Steinfield, C. & Lampe C. (2006). The Benefits of facebook “Friends” Social Capital and College Students Use of Online Social Network Sites. *Journal of Computer. Mediated Communication*. 12(4), 1143 - 1168.

Ford, M. (1992). *Motivating humans: Goals, emotions, and personal agency beliefs*. Newbury Park, CA: Sage Publications.

Fraide A. G. & Ronnel B. K. (2014). Social Influences’ on Students Academic Engagement and Science Achievement *Psychology of Students* 59(1), 30-35 doi. 10. 1007/s12646-013-0215-9.

Gray, K., Chang, S., & Kennedy, G. (2010). Use of Social Web Technologies by International and Domestic Undergraduate Students: Implications for Internationalising learning and teaching in Australian Universities. *Technology Pedagogy and Education*, 19(1), 31-46.

Hall, S. A. & Pearsons, J. (2001). Internet Addictions: College Students Case Study Using Best Practises in Cognitive Behaviour Therapy. *Journal of Mental Health Counselling* 23, 312 – 327.

Hill, P.C. & Hood, R.W.Jr, (1999). Measures of Religiousity, Birmingham, Alabama Religious Education Press, ISBN 0-89135-106-X.

Iannaccone, L.R. (1990) ‘Religious Practice: A Human Capital Approach’, *Journal for the Scientific Study of Religion* 29(3), 297–314.

Jan, K. & Hermkens, K. (2011). “Social media? Get serious! Understanding the functional building blocks of social media”. *Business Horizons* 54 (1), 241 - 251, doi:10,1016/j.bushor.2011.01.005.

Johnson J.G., Cohen P., Kasen, S., & Brook J.S. (2007). Extensive television viewing and the development of attention and learning difficulties during adolescence. *Archives of Pediatrics And Adolescence Medicine* 161(5), 480–486.

Intakhab M., Ferro, C. Kisoma, M. Lankford, L., & Baskin J.S. (2015). The Role of Media. Retrieved from <http://www.publishyourarticles.net/eng/articles/an-essay-on-the-role-of-media.html> 28 October, 2015.

Kakonge, E. (2000). “Gender differences in Science subjects in Secondary schools in Kenya. An investigation of entries, attainment and teachers perspectives”. Paper presented to the Women Educational Researchers of Kenya (WERK) Association meeting held at the Kenya Safari Club on 3rd November 2000.

Kaplan, A. M. & Haenlein, M. (2010). “Users of the World , Unite! The challenges and opportunities of social media”. *Business Horizons* 53 (1), 61 - 67 doi:10,1016/j.bushor.2009.09.003.

Keeves, J.P. & Kotte, D. (1991). Sex Differences in Science Education: 1970 to 1984. Pergamon Press, Oxford.

Kotte, D. (1992). Gender Differences in Science Achievement in 10 countries, 1970/71 to 1983/84 Pergamon Press, Oxford.

Lawson, E. T. & McCauley, R. N. (1990). *Rethinking Religion: Connecting Cognition and Culture*. Cambridge: Cambridge University Press.

L'Engle K.L., Brown, J.D., & Kenneavy, K. (2006).The mass media are an important context for adolescents' sexual behaviour. *Journal of Adolescence Health*. 38(3), 186–192.

Line, C. R. (2005).The relationship between personal religiosity and academic performance among LDS college students at Brigham Young University. A PhD Thesis submitted to Purdue University.

McKune B. & Hoffman J.P. (2009). Religion and Academic Achievement Among Adolescents. *Interdisciplinary Journal of Research on Religion* 5(10), 7-10.

National Examinations Council (NECO), (2015). www.neco.ng. Assessed 28, October, 2015.

National Report on Situation and Policy Analysis of Basic Education in Nigeria, (1993): Universal Basic

Education (UBE) Statistics on teachers in Abia and Imo, Nigeria.

Ofole N.M., Awoyemi E. A., Siokwu, M.E. Ojukwu, M.O. & Uwakwe C. B. U. (2015). Aggressive and Truancy Behaviours among Adolescents in Lagos State: Any Association with Parental Monitoring of Television viewing and Internet activities? *The Counselor* 34 (2), 88-98.

Okwon, R. O. (2005): Mathematics Achievement and Academic Performance in Chemistry. *Journal of Quality Education*, 2(1), 11-25.

Oloyede, G.K. (2010). "Best Practices for the inclusion of Women in Science and Technology: The South-western Nigeria experience. Paper delivered at the Third World Organization for Women in Science (TWOVS) Fourth General Assembly and International Conference: *Women Scientists in a Changing World* 27-30 June 2010, Beijing, China.

Orodho, A.J. (1996). Factors determining achievement in Science Subjects at Secondary School level in Kenya. A Ph. D thesis KU (BER).

Paul, J. A., Baker, H. M., & Cochran, J. D. (2012). Effect of online social networking on student academic performance. *Computers in Human Behaviour* 28 (6), 2117–2127 doi:10.1016/j.chb.2012.06.016

Peltzer K., Malaka D. W. & Phaswana N. (2002). Sociodemographic factors, Religiosity, Academic performance and substance use among First-year University Students in South Africa. *Psychological Reports* 91(1), 105-113. doi: 10. 2466/pr02002.91.1.105.

Postelthwaite, T.N. & Wiley, D.E. (1991). *Science Achievement in Twenty - Three Countries*, Pergamon Press, Oxford.

Sacerdote B. & Glaeser E.L. (2001). "Education and Religion" National Buureau of Economic Research pp 29 – 34..

Sharif I. & Sargent J.D. (2006). Association between television, movie, and video game exposure and school performance. *Pediatrics* 118(4), 1061-e1070.

Sharif, I., Wills, T. A., & Sargent, J. D. (2010). Effect of Visual Media Use on School Performance: A Prospective Study *Journal of Adolescence and Health*. 46(1), 52 - 60 doi: 10.1016/j.jadohealth.2009.05.012

Sponcil, M. & Gittimu, P. (2012). Use of Media by College Students: Relationship to Communication and Self-Concept. *Journal of Technology Research*, 12, 34-41.

Stolz, J. (2006). 'Salvation Goods and Religious Markets: Integrating Rational Choice and Weberian Perspectives', *Social Compass* 53(1), 13–32.

Stolz J. (2009a). Explaining religiosity: towards a unified theoretical model *The British Journal of Sociology* 60(2) 344-377.

Stolz, J. (2009b). 'Gods and Social Mechanisms. New Perspectives for an Explanatory Sociology of Religion' in M. Cherkaoui and P. Hamilton (eds) *Raymond Boudon. A Life in Sociology*: The Bardwell Press.

Udousoro, U. J. (2011). The Effects of Gender and Mathematics Ability on Academic Performance of Students in Chemistry. *African Research Review* 5 (4), 21, 201-213.

Umoh, C. G. (2003). A Theoretical Analysis of the Effects of Gender and Family Education on Human Resource Development. *Journal of Curriculum Organization of Nigeria*, 10(1), 1 – 4.

WAEC - West African Examinations Council (2006). Comparative Study of the Performance of The Gambian, Nigerian and Sierra-Leonean Candidates at the West African Senior School Certificate Examination (WASSCE) between 2002 – 2004.

WAEC - West African Examinations Council (2015). Chief Examiner's Report. [www. waec.ng](http://www.waec.ng) Assessed 02 November, 2015.

Whitehouse, H. (2000). *Arguments and Icons: Divergent Modes of Religiosity*. Oxford: Oxford University Press.

Wiecha, J.L, Sobol, A.M, Peterson, K.E, & Gortmaker, S.L. (2001). Household television access: associations with screen time, reading, and homework among youth. *Ambul Pediatrics*. 1(5), 244–251.